

LEXSEE jp-a 7107753

COPYRIGHT: (C) 1995, JPO

PATENT ABSTRACTS OF JAPAN

1, 3, 4, 8
07107753

GET EXEMPLARY DRAWING

April 21, 1995

PIEZOELECTRIC-ELEMENT DRIVING DEVICE

INVENTOR: HAYASHI HIROTADA; KONDOW MOTYUKI

APPL-NO: 05242908 (JP 93242908)

FILED: September 29, 1993

ASSIGNEE: TOYOTA MOTOR CORP

INT-CL: H02N2/00, (Section H, Class 02, Sub-class N, Group 2, Sub-group 00);
F02D41/20, (Section F, Class 02, Sub-class D, Group 41, Sub-group 20);
H01L41/09, (Section H, Class 01, Sub-class L, Group 41, Sub-group 09)

ABST:

PURPOSE: To provide a piezoelectric-element driving device, which accurately compensates for the change in expansion amount caused by the change with time, temperature change and the like of a piezoelectric element.

CONSTITUTION: A resonance circuit constituted of a charging inductor 13 and the electrostatic capacitance of a piezoelectric element 101, is used, the voltage of a power supply is stepped up and applied on a piezoelectric element and charging is performed. A charging-energy regenerating circuit comprising a secondary inductor 17, which is electromagnetically coupled to the charging inductor, and a diode 18, is provided in a piezoelectric element driving device. In this device, a switching means 20 is provided in the regenerating circuit. The expansion amount is detected from a part 10 of the piezoelectric element. The expansion amount is compared with a specified reference value. At the time when the expansion amount reaches the reference value, ON control is performed for the switching means. At the time of the ON control of a charging-energy regenerating circuit, a voltage V[1] across both ends of the piezoelectric element is held with a sample/hold circuit 30. With the output as the monitoring output, the fail safe of the device is realized.

LOAD-DATE: June 17, 1999